Expanding the Network of Postal Routes in France 1708-1833

Anne Bretagnolle, Nicolas Verdier

Among the networks of communication that have been developed throughout history, the mounted mail[1], which began in France in the Middle Ages, is one of the oldest. From the creation of the first permanent roadhouses for the king's horsemen at the beginning of the 16th century to the gradual closing of these relay stations that had been challenged by the railroad since the 1850s, the development of an extremely efficient system of communication, whose purpose grew over time, spans four centuries. Its original purpose was to route royal and administrative correspondence (and private mail from the beginning of the 17th century) as swiftly as possible, thanks to a network of relays where horses could be changed. The transport of light and semi- valuable goods was then added to the list of services, followed by the transportation of well-to-do passengers at the end of the 18th century. The fact that the postal network was composed of nuclei rather than links is another characteristic of its physical infrastructure. Evoking the vocabulary of the 18th century, historians prefer to describe it as a "system"[2] rather than a "network." Although the mounted mail made increasing use of the paved or cobblestone roads built by the engineers of the department of Bridges and Roads in the 18th century, it was the aggregate of relay stations and not the sections of roadway that were managed by the institution, since the itinerary that connected one nucleus to another could change over time. But this fluidity is also a characteristic of the stations themselves, as Guy Arbellot's reckonings[3] have shown: between 1632 and 1850, less than half of the relay stations remained the same. In this sense, the impression of permanence and longevity gives way to the notion of change and chance.

Our study of the evolution of the postal system was conducted as an inquiry into the shape of the network at different times, reconstructed by using a Geographic Information System (GIS), and as an analysis of source material that helps us understand the mindset of the historical participants involved with the network.[4] The initial results indicate a duality within the growth process that associates continuity and coherence with instability and fragmentation. In this article, we present the preliminary results of an ongoing project: first, we show the potential results but also the restrictions of an approach using a GIS (still not widely used by historians), then we analyze the rhythms and expansion of postal routes and the characteristics that allow us to describe them as a unique network, despite their ongoing modification. Using a surveyor's squaring map, we then present a regional typology indicating the concentration of horse appointments in our conclusion.

Translated from French by Kenneth Berri

[1] The mounted or equestrian mail, "la Poste au chevaux," consisted of a group of relay stations managed by postmasters who kept a certain number of horses groomed for use by the postal system. Letter mail ("la Poste aux lettres") referred to the group of post offices where customers sent or received their mail which had been routed there from the nearest relay station.

[2] See Alexis Belloc (1886), *Les postes françaises, recherches historiques sur leur origine, leur développement, leur législation*. Paris, Firmin-Didot.

[3] See Guy Arbellot (1979), "Le réseau des routes de poste, objet des premières cartes thématiques de la France moderne", in *104e congrès des sociétés savantes, Bordeaux 1979, Histoire moderne*, t. 1, pp. 97-115. Paris, Bibliothèque Nationale, 1980.

[4] The project was begun with the assistance of a CNRS grant for young researchers, an "ATIP Jeunes Chercheurs," directed by Nicolas Verdier.

I. Using a GIS to capture the postal network

The use of a Geographic Information System to study transportation or information networks is widespread among geographers but not historians.[5] It offers several useful features to our study.

From a diachronic point of view, the SIG uses a set of homogeneous criteria that facilitate comparisons: Guy Arbellot's maps of mounted mail routes represent the transposition of abundant cartographic information that uses different projections, whereas an SIG uses a constant, invariable projection. The acquisition of routes is also more precise, because we are able to trace them using a group of hundreds of relay stations, instead of being limited to the segments or main crossroads indicated on historic maps. Finally, the diachronic comparison of networks, especially when statistical analyses are used, is facilitated by the option of choosing the same interval of years between acquisitions. By choosing this method, we do not mean to discount another approach that would attempt to establish different blocks of time based on the cycles and development of the postal network, by selecting specific key dates in the history of the postal institution. For the purposes of a exploratory study, it seems more appropriate to use neutral divisions that allow us to move beyond the canonical chronological demarcations that are not always relevant to the organization of a technical system. Supplementary divisions based on the results obtained from the initial study may be added at a later date.

Use of the SIG also offers the possibility of using the databases furnished by the acquisition of service stations or segments of highway. In turn, this allows us to perform a set of measurements and tests that will corroborate or modify the working hypothesis of our research. In this case, the hypotheses may be relative to the shape of the network and its evolution, the study of the distance between stations, or relationships that are formed between the postal network and its territory.

Like any approach that uses measurements, the computerized acquisition of postal networks demands that choices be made. These choices will prove to be more or less binding. First of all, we chose a few isolated dates from the lengthy series of Post Books conserved in the archives of the Musée de La Poste[6] that would allow us to establish a reasonable period of time for acquiring data.[7] We chose an increment of 25 years, beginning in 1708 (the date of the first existing Post Book). Thus the final acquisition date is 1833, perhaps a bit far away from the period of the largest expansion of the network (around the beginning of the 1850s). But as we have already mentioned, the addition of a new chronological division may always be made later in the course of research.

A second, more binding choice was to make a partial acquisition of stations for each Post Book. The location of service stations was different from post offices; more often than not, they were not found in heavily populated areas but rather in locations that regularly punctuated the horses' itinerary.[8] These places were often only hamlets or small villages that are extremely difficult to locate today. This factor led us to choose a selective criterion based on the demographic size of the localities. Instead of using actual populations that could skew

---

[5] In the past decade, GIS studies of current railroad, highway or metropolitan networks have been done by geographers.

[6] We would like to thanks the conservators and staff of the Musée de La Poste whose availability, kindness and knowledge greatly facilitated our access to these sources.

[7] We used an acquisition time of approximately one full month for gathering information on the network at the latest period in our corpus (1833). In the context of the ATIP (see below), we had six months total to finish acquiring all databases used.

[8] See Alberto E. Minetti, "Efficiency of equine express postal systems", in *Nature* vol. 426, December 2003, pp. 18-25.

results, we began by using a historic database[9] that gave us an exhaustive list of the size of towns throughout France between 1809 and 1811. We used a threshold of 750 inhabitants that represents approximately 11,000 communes.

The method used to capture stations and segments of the routes that made up the network at a particular date was developed in a three-step process: the display of the group of towns in a specific region, the identification of the stations, and the sketching of the road segments that connected each of these nuclei (Table 1). Two databases emerged from this identification, one on service stations (an excerpt is given in Table 1) and another that presents road segments (Table 2).

Table 1: Excerpt from the database "Service Stations in 1708"

	Town code	Population in 1810	Existence of a station in 1708
Limoges	87085	21757	1
Uzerche	19276	1942	1

Table 2 : Excerpt from the database "Road Segments in 1708"

	Departure station	Arrival station	Distance as the crow flies (km)*	Existence of unidentified intermediate stations**	Number of post offices**
Segment 1	Nîmes	Uchaud	11.7	no	1
Segment 2	Uchaud	Lunel	14	no	1

** Measurement taken by GIS **Criteria obtained from Post Books*

To improve the quality of the data collected, we have added some stations that do not appear in the base of towns with a population over 750 in 1810 but that do represent important crossroads (like Saint Denis or Le Bourget, both north of Paris) or stops on routes that had very few stations (such as Couiza, south of Toulouse, without which the total length of the segment would have been more than 50 km). For these reasons, approximately thirty stations in all were added for each date. The ratio of stations identified to the collective number found in the Post Books fluctuates, according to the dates, between two-thirds and three-fourths. This proportion was gleaned from the numeric list of stations in the Post Books on three different dates (Table 3). For the year 1708, we used Jean Belhabit's work that may be consulted at the Musée de La Poste.[10] We did our own station count for the other two dates. The reckoning does not include relay stations that were foreign in the period but are on French soil today, which biases the resulting percentage. For this reason we have added a 5 % margin of error to our calculation.

[9] This database was constructed using the 1806 census report and the survey of 1810-1811; it was formulated by the EHESS's Laboratory of Historic Demographics and graciously provided by Claude Motte whom we wish to thank here.

[10] Jean Belhabit, *La Poste aux chevaux : routes et relais au temps de Louis XIV*. S.l., ronéotype, 1988.

Table 3: Ratio of stations collected vs. total number of stations

	Number of stations collected	Total number of stations	Percentage
1708	532	760	70
1783	957	1572*	60 to 65
1833	1052	1477*	70 to 75

** Within the French borders of the period*

At this point, we must qualify our results. When looking at the database for the stations, the use of small scales was problematic (for example, a group of small communities or an arrondissement): the uneven distribution of the lacunae throughout the terrain could critically prejudice the data. On the other hand, if we took certain precautions in interpreting the results, we were able to analyze other data on a regional or even a national scale, taking all of France into consideration. Two aspects of the road segments base must be highlighted. The overall shape of the network, seen as the combination of nuclei (crossroads or blind valleys) and connecting roads, was determined with a weak margin of error, below 5 % according to the results of a test done on a 50,000 square kilometer area between Metz, Montbéliard, Vitry-le-François and Strasbourg. When we look at the network using a smaller scale, however, there are sometimes visible deformations, due to the existence of intermediate stations that are missing: the diagram is too rectilinear, and distances (calculated as the crow flies by GIS) are shorter than the same distance on land. Here, too, care must be taken in processing and interpreting the data.

Despite these reservations, the databases collected from the Post Books represent an important set of unedited material that allows us to make several important observations on the evolution of the shape of the network of postal routes.

2. The increasing density of the postal network

By graphing the development of the total length of the network (Table 2), we can clearly see a densification, emphasized by historians, taking place from the 18th century to the first half of the 19th century. In a period of 125 years, the network extended itself to two and a half times its original size, growing from 10,400 km in 1708 to 27,800 km in 1833. Referring to the divisions we chose for capturing the network, we see growth beginning in 1733 that continued steadily until 1783. After sharply dipping during the Revolution and the following decade, growth picked up the pace again at the end of the Empire through the Restoration and the July Monarchy.

Several critical works mention the factors attributable to such a strong densification.[11] The first factor was the installation of a network of efficient royal routes, initiated by the Controller-General Orry's orders of 3 June 1738. This installation marked the beginning of a program of road developments throughout France that was financed by adopting local labor. Peasants were expected to contribute, either physically or later financially (for instance, in the old French treasury subdivisions of Caen and Limoges) to these enormous public works.

[11] Besides the work of Guy Arbellot and Alexis Belloc we have already mentioned, see Patrick Marchand, *Les maîtres de poste et le transport public en France, 1700-1850*, Doctoral thesis, Université de Paris I, (2004); Eugène Vaillé (1950), *Histoire des Postes françaises depuis la Révolution*, Paris, PUF; and Bernard Lepetit, *Chemins de terre et voies d'eau. Réseaux de transport et organisation de l'espace*. Paris, Editions de l'EHESS, 1984.

Orry's orders were not fully executed until the intervention of Daniel-Charles Trudaine, who was appointed as director of the department of Roads and Bridges ("Ponts et Chaussées") in 1743. The period from 1750-1780 was one of intense activity of expansion: according to Guy Arbellot's calculations,[12] a network of royal routes covering 14,000 kilometers in 1776 had grown to 26,500 kilometers by 1790. Finally, the Report on the Construction and Maintenance of Roads submitted by the engineer Trésauget in 1775 served as a model for all engineers in the following years.

From the beginning of the Revolution to the Empire, more than 3,000 kilometers of postal routes disappeared for various reasons. The economic situation no longer allowed the entire network of stations and roads to be maintained in good condition, especially after warring factions had destroyed roadways with their repeated passage. The decree of 29 brumaire year III and the postal lease of 1st prairial year VI both accept in principle the disappearance of certain stations. Some postal routes were kept open during this period, either because they connected new regional headquarters (especially in southern France) or because they provided the most strategic lines of communication for the revolutionary armies.[13] During the Empire, there was a deliberate political movement to close service stations within the national borders, accompanied by the opening of stations in annexed territories. The scales were strongly unbalanced, since we find the same level of postal apparatus in 1810 as there was in the 1760s. Politicking over routes became extremely active from 1810 onward, with a stronger growth pattern than in the preceding century.[14] This was not only due to the extension of the network of royal routes, but also because of the merger of the institutions representing the mounted mail and the letter mail that strove for the most efficient distribution of mail beyond the confines of itineraries of national importance.

If the entire length of the network more than doubled during the period in question, its geographic inscription was remarkably stable (See Figure 3 and 3-bis). We shall return to the changes that are observable from one date to another. But the overall shape of the network, a star with Paris at its center, more intricate in the north than in the south, had been set since 1708. But these characteristics are not that old: if we go farther back in time, using Nicolas Sanson's map (1632) or the inventory of postal seats under Henry III (1584), Paris and the north of France are far from constituting the bulk of the network. On the contrary, the gravitational center of the network was shifting from the Loire valley toward Lyon. It was not until the end of the 17th century that it moved progressively back in the direction of Paris and Versailles.[15]

The series of maps reveal three organizational principles. One level that exists throughout the period maintains the centrality of Paris in relation to its international links. In other words, the organizational logistics of the network connect the political center with major cities and ultimately with the borders of the country. Although this design is progressively masked by a network that became more and more complex, it persisted over time (thus Brittany, which had long been removed from such rapid means of conveyance, gradually obtained it in the 18th century. The network covered the coast of Brittany in 1758). From this point of view, it is

---

[12] See Guy Arbellot, "La grande mutation des routes de France au XVIII[e] siècle", in *Annales ESC*, 28th year, no. 3, May-June 1973, pp. 765-790.

[13] See Jean-Marcel Goger, "Les routes du Sud-Ouest de 1780 à 1815 : efforts d'équipement et espoirs déçus", in *Revue géographique des Pyrénées et du Sud-Ouest*, Tome 60, Fasc. 3, 1989, pp. 301-328.

[14] See Aude Berviller, *La politique routière de la Monarchie de Juillet 1830-1848*, master's thesis in history, University of Paris IV, directed by F. Caron, 1995.

[15] See Anne Bretagnolle and Nicolas Verdier (2005), "Images d'un réseau en évolution : les routes de poste dans la France pré-industrielle (XVII[e] - XIX[e] siècles)," in *Mappemonde*, a virtual magazine online, http://mappemonde.mgm.fr, no. 79 (2005-3).

more than likely that if we prioritized the use of specific lines of the network, these axes emanating from Paris would still be clear in 1833. By comparison, France's provisions for railroad lines that began in the 1830s (in parliamentary debates) will use the same principle under Étoile de Legrand (director of Roads and Bridges at the time).

The second organizational level, which appears mainly in the 1750s, has to do with regional logistics. Perfectly defined areas become more and more complex, to the point where the entire zone appears to be crisscrossed with routes connecting regional urban centers with more local networks. The local networks were first shaped like triangles, and later like stars. Lower Normandy, Picardy, the north, and even Lorraine witness this development. A look at the maps of the day indicates two types of distribution: first, a hierarchical one, originating in important hubs, that may be the origin of the provincial networks, and then a second one, which grew from the first, that was extended beyond the borders of the provinces after the initial phase. The effect of the division of France into departments during the Revolution on the reallocation of administrative functions in the urban context should be taken into consideration at this juncture.

The third level contrasts "empty" and "full" zones. Mountainous areas are the best example of an "empty" zone. The most consistently empty zones are the southern portion of the Massif Central and a small part of the Alps. "Full" zones comprise the most urbanized areas of the period: first of all, the northeast of France and then, less definitely, the Rhone corridor. On the maps showing the density of segments of postal roads we shall see in the next section, the only two zones that remain stable throughout the period are central Paris and the empty area south of the Massif Central. So we can see the interaction of three geographic logistics at work, blending and overlapping each other, as they affect the growth of the French network of postal routes.

3. Endless transformations that do not perturb the coherence of the network

Whether or not it is possible to use the term "network" when discussing a group of nuclei and connections that were articulated into a system in a specific historical period is far from a neutral question. It supposes that we conceive of the postal service as a more or less well-organized system and invites debate over the original use of the term "network." The second point will allow us to situate the issue in the context of French historiography. The debate on the network among historians would seem to date from the 1980s when a group of them participated in the "Network Group" affiliated with the CNRS and LATTS (the French acronym for "Laboratoire technique, Territoire et Société), a division of the Ecole Nationale de Ponts et Chaussées (the National School of Bridges and Roads). It was mainly the work of three historians that addressed the emerging concept of a "network" - Bernard Lepetit, André Guillerme and Georges Ribeill. The three authors agreed on the later appearance of the concept between 1820 and 1830 at the Ecole Polytechnique, although works from the last third of the 18th century discuss its issues without necessarily referring to a "network" *per se*.[16] The first third of the 19th century saw the moment of synthesis between the concept of the network and the use of the word itself to describe it. Before that time, the network would have been "unthinkable" as a concept. The proof system supporting this assertion is found in the corpus of the National School of Bridges and Roads, but it was not until much later that it conceived of the set of roads as a network. The large scale of the project precluded any

[16] See Georges Ribeill, "Au temps de la Révolution ferroviaire, l'utopique réseau", in *Cahiers du groupe Réseaux*, no. 5, July 1986, pp. 51-66; André Guillerme, "Réseau : genèse d'une catégorie dans la pensée de l'ingénieur sous la Restauration", in *Flux*, October-December 1991, pp. 5-17; Bernard Lepetit, "L'impensable réseau : les routes françaises avant les chemins de fer," in *Cahier*, no . 5, 1986, pp. 12-29.

consideration of routes on a smaller scale and, by extension, of their interrelationships and of the network. Published work on the period includes Bernard Lepetit's *Réseaux de transport et organisation de l'espace en France (1740-1840)* and Guy Arbellot's studies of routes.[17] The network itself is not central to the problematics these two authors discuss for the following reasons: Lepetit is most likely convinced that the network did not exist; in Arbellot's case, the network is really not his primary subject. What is important is the fact that in subsequent publications[18] - like the *Atlas de la Révolution française* that traces channels of communication - the question no longer arises: the inexistence of the network in the 18th century is taken for granted. But at the time of the network group's discussions, Georges Amar, a member of the RATP, expressed amazement that the idea of a network of routes could exist without being conceived. This remark, which recalls Alain Guerreau's thoughts on the organization of relations between abbeys, led us to distinguish between different types of usage. It became necessary to separate the scientific and technical registers. One could argue that the École Polytechnique's formulations early in the 19th century take a scientific approach. On the other hand, the praxis of the network, which is often older and untheoretical, emerges from a technical context that is not loquacious enough for historian's taste. We do not mean to suggest that technical aspects were systematically the precursor of scientific production, but we do reject the necessary causal relationship of the inverse relation that would make scientific activity a prerequisite for technical development.[19] This ambiguous displacement between technique and science leads us necessarily back to the question of the existence of a network. From this point of view, the postal service offered a routing system that was clearly action-oriented, with no theoretical goals. Such a position would at least partially explain the lack of source material on the network.

Besides the problematic relationship between actual routes and the concept of a network before the beginning of the 18th century, students of postal history in this period have a recurring impression that the postal system did not exist *strictu sensu* because those involved do not refer to it during the period itself. The problem here lies in the very nature of the archives themselves. To be absolutely clear: rumors about the postal archives would have it that these archives have virtually disappeared because of the fire at the Finance Ministry during the Commune. But in fact, numerous archives still exist on the departmental and communal level as well as in the National Archives.[20] The series on the postal office may not be as rich as the series on other institutions, but they do exist. The difference lies in a question of balance: in order to reconstruct a semblance of the national sources, we must begin with local sources whose own logic is different from the national logic. In other words, for each learning scale, there is a different mode of interrogation. The myriad requests and extent of participation by individuals that dominate source material at the local level show how strongly factional reasoning could affect decisions on the direction of routes. There is a general state of archival anarchy. Extant national sources are few in number and rarely deal with the issue of a network. These documents reveal two different faces of the postal system: either the map of French post offices that allow us to synthesize the entire system of channels of communication, or Post Books that offer much more than a simple list of relay stations, since their information is organized and prioritized for each and every postal route.

---

[17] Guy Arbellot (1979), *op. cit.*, Bernard Lepetit (1984), *op. cit.*.

[18] Guy Arbellot, Bernard Lepetit, Jacques Bertrand, *Atlas de la Révolution Française*, vol. 1, *Routes et communications*, Paris, Éds. de l'EHESS, 1987.

[19] For an analogous argument in the field of law, see issue no. 6 of the *Annales HES* (2002) on "L'Histoire du droit" (History of the Law).

[20] The inventories of sources that have been published or will appear in the future prove this point abundantly.

In addition to these documents that deserve their own study (the work is underway), the analysis of the changes within the group of postal routes reveals that its construction and re-working, in and of itself, leads us not in the direction of anarchy but rather to valorize the organization of a system of postal channels within a network that was a desideratum. For this reason, we shall focus our attention on the stability of the network as such and on its growth in order to prove the existence of a network.

At this point, we should specify the material on which we base our findings. From one date to another, the databases on route segments collected by the GIS show three types of change: relay stations that were preserved, station that were created, and other that were abandoned. To what do we attribute these appearances and disappearances? In one case, a segment change corresponds to a route change, made either to improve efficiency or to replace a postal service station that had disappeared. Here we find a recurring idea shared by historians who study of the old postal routes of France: there could be numerous variations over time in an itinerary between two places. If passage was not possible or was impeded one way, then another route was taken. In the second case, a segment change on the same route meant that the postal relay station had been changed, either because the new location proved to be less tiring for the horses (a voluntary choice) or because an abandoned station had to be replaced (a necessary choice). Finally, the addition or subtraction of a segment corresponds to the expansion or reduction in the size of the network.[21]

The fundamental issue here is whether or not local conditions and hazards, such as the factors contributing to the appearance or disappearance of a relay station, warrant a re-examination of the structure of the entire group of stations. In other words, does the often-mentioned instability of the postal relay stations' location affect the itineraries so significantly that it prevents any organizational impulse?

To simplify the sampling, we examined three chronological steps relating to the appearance, disappearance, and preservation of stations that are contemporaneous with route segments, for the periods 1733-1758, 1758-1783 and 1810-1833 (Figure 4). First of all, we looked at the status of additional segments, the basic elements of a vigorously expanding network. The first element we discovered is the strong concentration of new relay stations in northern France at the beginning of the period, followed by its extension southward. The highest density remains in the north after 1750 and intensifies at the beginning of the 19th century. This would appear to be a simple description of the growth of the postal network. But a problem arises when we compare this description with that of the actual expansion of the network: it definitely became more concentrated in the north, but to a lesser degree than the dominant impression given by maps of existing routes. The maps of routes that had disappeared account for the difference and support the hypothesis that the lack of a specific network of routes is due to the instability of the segments. Our interpretation of this evidence, however, is diametrically opposed to this idea, because the fluctuations of routes did not prevent the post from providing its service. From this point of view, we see a postal organization that was flexible and responsive enough to change and adapt to the requirements of a territory in flux. As for the breakdown of the segments that disappeared, we observe that although less concentrated, they resemble the newly created routes, more numerous in the north, but with a tendency to become better distributed toward the south, during the entire period of our study. In other words, if we recall the series of six maps showing the expansion of the network of postal routes, we see that the more these areas are densely outfitted, the

[21] Gabrielle Quantin, Frédéric Desroches's, "D'une Révolution à l'autre. Maîtres de poste et réseau postal en Côte-d'Or 1789-1848", in *Les cahiers pour l'histoire de la Poste*, no. 2, 2004, offers excellent examples of these three types of change.

higher the concentration of appearances and disappearances of route segments. The prevailing hypothesis of the growth of a network by successive additions to a stable background is dismantled by the existence of a consistently unstable growth pattern; its progress is the result of a series of imbalances. A stronger hypothesis emerging from this observation is that concentrated networks are always young networks and diluted networks are always old ones. So the vitality of a network would be measured by the intensity of its retooling. The idea requires some modification, since an unstable system also becomes more fragile. Nonetheless, this aspect must also be taken into account for a better understanding of the growth of the network. Innumerable route segments were preserved over time, without almost ever being scrutinized, for a period of over twenty years[22], or in some cases, throughout the entire period.[23] They are the defensive armor where the fluctuations within the network are located, offering the image of a dense network in the north that is sparser in the south, even with the creation of the east-west connections that circumvented the Massif Central.

4. Use of a squaring map to simplify information

The understanding of the transformations of this highly reactive network requires the analysis of a vast quantity of route segments. The complexity of that much information soon became impossible to control and prompted a shift to a synthetic method that comparatively analyzes the relative density between zones. We have minimalized the problem by gathering information on a squaring map that has divided France into squares of 100 kilometers on each side (this produced 71 nearly complete squares).

Our first angle of approach was the concentration of route segments (Table 5), ranging from 0 to 1.46 kilometers per 10 km^2, with a mean of 0.33. Discrete division into classes of equal establishment for the entire period indicates that there were more and more of the densest squares (class 1: between 0.6 and 1.46 km per 10 $km^{2)}$ during the entire 18th century (2 in 1708, 4 in 1733, 12 in 1758, and 18 in 1783). This number is diminished in the period between the Revolution and the Empire (13 in 1810, the same number as in 1758), only to rise rapidly later (24 in 1833). The data is clearly sensitive to the historic upheaval at the turn of the 18th to the 19th century. This phase of shrinkage of the network is directly connected to the proportions of route segments. As for the least dense squares (class 6: between 0 and 0,04 km per 10 km^2), after holding steady until 1733 (19 in 1708, 18 in 1733), there are fewer and fewer of them in following years (12 in 1758, 8 in 1783, 8 in 1810 and 2 in 1833). This data allows us to formulate the following hypothesis that explains the morphology of this growth pattern: on the scale of the entire country, development at the beginning of the 18th century took the form of enhancement in some squares and stagnation in others, far from a balanced growth pattern, which does correct itself, however, at the end of the century (to the exclusion of the poorest areas). Finally, growth in the 19th century appears to be more evenly distributed, since the increase in the number of the densest squares was accompanied by the disappearance of the class 6 squares, the least dense, in the discrete division.

The sources of the general distribution are complex. There were two or three sub-groups in 1708. The first, which is also the largest, corresponds to the north-northwest area covering Normandy, Picardy, Flanders and the capital. The second lies to the east and corresponds roughly to the size of Alsace, which became a French territory in the 17th century. The third

[22] Factually speaking, the cumulative length of the route segments that disappeared between 1733 and 1758 was 2,687 kilometers, or 25 % of the total length of the network in 1733. This percentage is the same for the later dates in our study, 1758-1783 and 1810-1833.

[23] Between 1708 and 1833, 4,580 kilometers of routes went unchanged. This represents 17 % of the total length of the network in 1833.

group - of similar size but less clearly defined - lies between Clermont-Ferrand and Lyon. Transformations until 1758 include the creation of a large area connect Normandy and eastern France (Lorraine was subject to the postal farm system [la Ferme des Postes] in 1703) [24]) and a slight change south of the Saint-Malo-Mulhouse line. The years between 1783 and 1833 were a time of intense concentration north of the direct line Lorient-Grenoble. Although there seems to be development around a Paris-Bordeaux-Pau axis (excluding the bad area of the Landes), it only occurred later and was less concentrated than in the area near the Paris-Lyon axis, or the Paris-Lyon-Marseille line. Transformations seem to have taken place by spreading lines southward, and by the southeast shift of the border separating the most and least densely outfitted areas.

Our second angle of approach looks at the concentration of relay stations (Table 6). We devote less time to analyzing it here, because only 60-70% of the data is currently available to us. Separately divided into classes of equal strength for the entire period, we observe an inversion of classes 1 and 6 similar to the one mentioned above in our analysis of route segments. The number of squares in class 1 (.24 to .67 relay stations per 100 km^2) saw strong growth with a slight decline during the Revolution. Moving from 5 squares in 1708 to 21 in 1833, the number had reached 18 in 1783 before falling back down to 12 in 1810. The number of least dense squares grew until 1733 (from 16 to 19), then declined rapidly (to 9 in 1758), remaining at 8 from 1783 to 1810, before finally falling to 4 in 1833. Once again we see numbers that are highly reactive to the changes brought by the Revolution and the empire, before recovering in the 19th century. There is also the same unbalanced growth in the initial period, unfavorable to most undeveloped areas at the beginning of the 18th century that becomes more balanced later on, even if from 1783 onward, the situation changed very little. Similarly to the case of the route segments, the Revolution affected the most fragile areas less than those that were more densely developed.

When we look at geographic distribution, we see a high concentration of relay station during the entire period within a crescent beginning at Colmar, broadening between Paris and Lille, before decreasing again as it moves toward Nantes. This general shape is heightened by an overall rise in density. The Lyon area was not affected by this movement until the end of the 18th century. We also see a clear and premature growth toward the southwest. The Massif Central and the area to the south are once again excluded from this progression.

Beside the fragile base of the relay stations, the results we obtained allow us to compare these two modes of division and develop a hypothesis on the nature of the development of the postal network in the 18th and 19th centuries. We have observed two developmental trends, which we might also refer to as two different modalities of growth. In the first one, a high concentration of relay stations in northern France is rapidly reached before it appears to level off. A system of route segments that becomes more and more complex is then grafted onto this structure. The second modality of growth focuses on the south, where it is consistently diminished in the period. Whereas the regional capitals (Lyon, Bordeaux, and even Marseille) drew their lots early on, if we compare these networks to wheels whose spokes saw limited action, we must wait much longer before seeing a more fully developed network, measured both by the concentration of outfitted relay stations and also by the degree to which the route segments actually articulate themselves with each other into a network. In the south, the southern portion of the Massif Central is a pole that consistently repels the network, like an inland desert that is resistant to colonization.

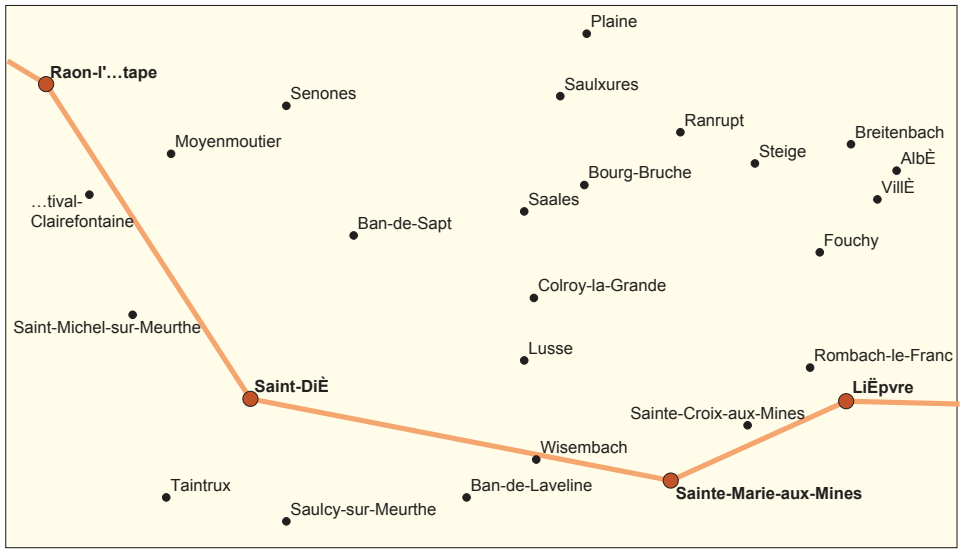
---

[24] See Eugène Vaillé, *Histoire générale des Postes françaises*, vol. 5, *La ferme générale et le groupe Pajot-Rouillé*. Paris, PUF, 1951, pp. 73-79.

In the history of the network of French postal routes, the period that includes the 18th century and the first half of the 19th century is a turning point. It would be an oversimplification to describe it simply as a period of concentration grounded in a star-like shape at the turn of the 17th to the 18th century. This is the first impression, however, that we have from the unencumbered visualization of the maps of networks that were produced over the course of a century and a half. But closer examination of the modalities of growth, thanks to simple analyses made possible by the use of a Geographic Information System, reveals several overlapping processes that we can only briefly sketch here. Thus the study of the different modalities of expanding of the postal network - expressing continuity, additions and eliminations - allows us to paint a more nuanced picture of the complexities of a day-to-day management that reveals the highly reactive nature of an institution struggling with conflicting processes. Moreover, the use of a surveyor's squaring map to synthesize information leads us to a better understanding of the character of these processes that concern French topography in highly distinctive ways during this vast disposition of routes and relay stations. Other analyses currently underway should offer us a better understanding of the modalities that contributed to the building of the postal network, especially its links with the historic conceptions and perceptions of its builders.

Figure 1: Capturing the postal relays in a Geographical Information System

The regional area around Saint-DiÈ in 1708



Commune largest than 750 inhabitants in 1806 (base C. Motte)

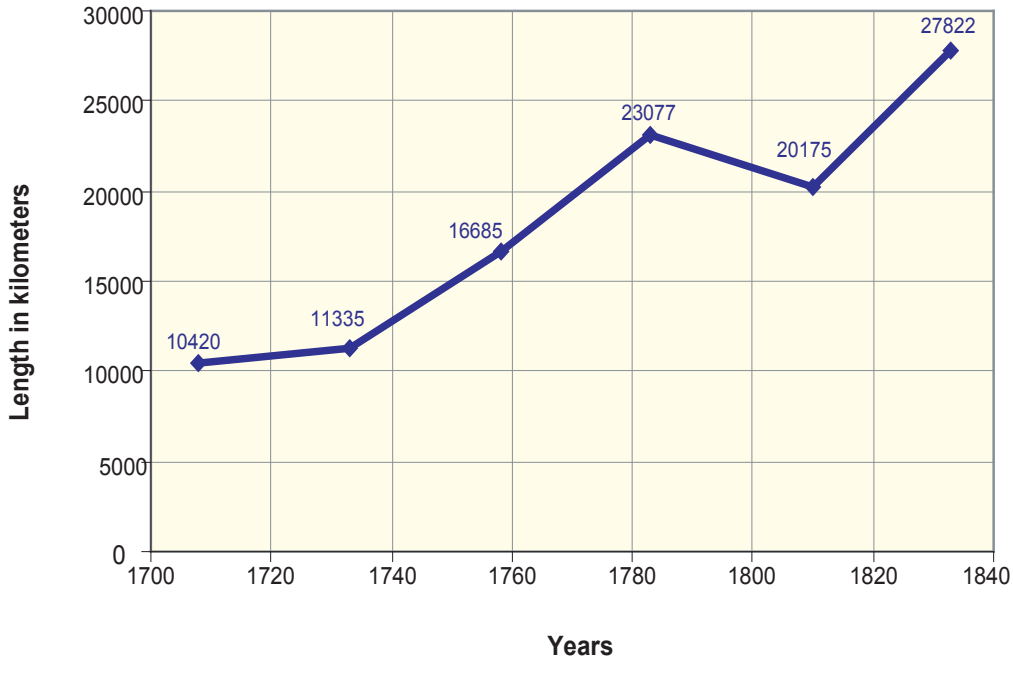
Commune including a postal relay in 1708 (captured in the GIS)

Road section between two relays (MapInfo 's digitilized tool)

Bretagnolle, Verdier, UMR GÈographie-citÈs, 2004

Figure 2 : Total length of the Postal roads (1708-1833)

(inside the current boundaries of the French country)



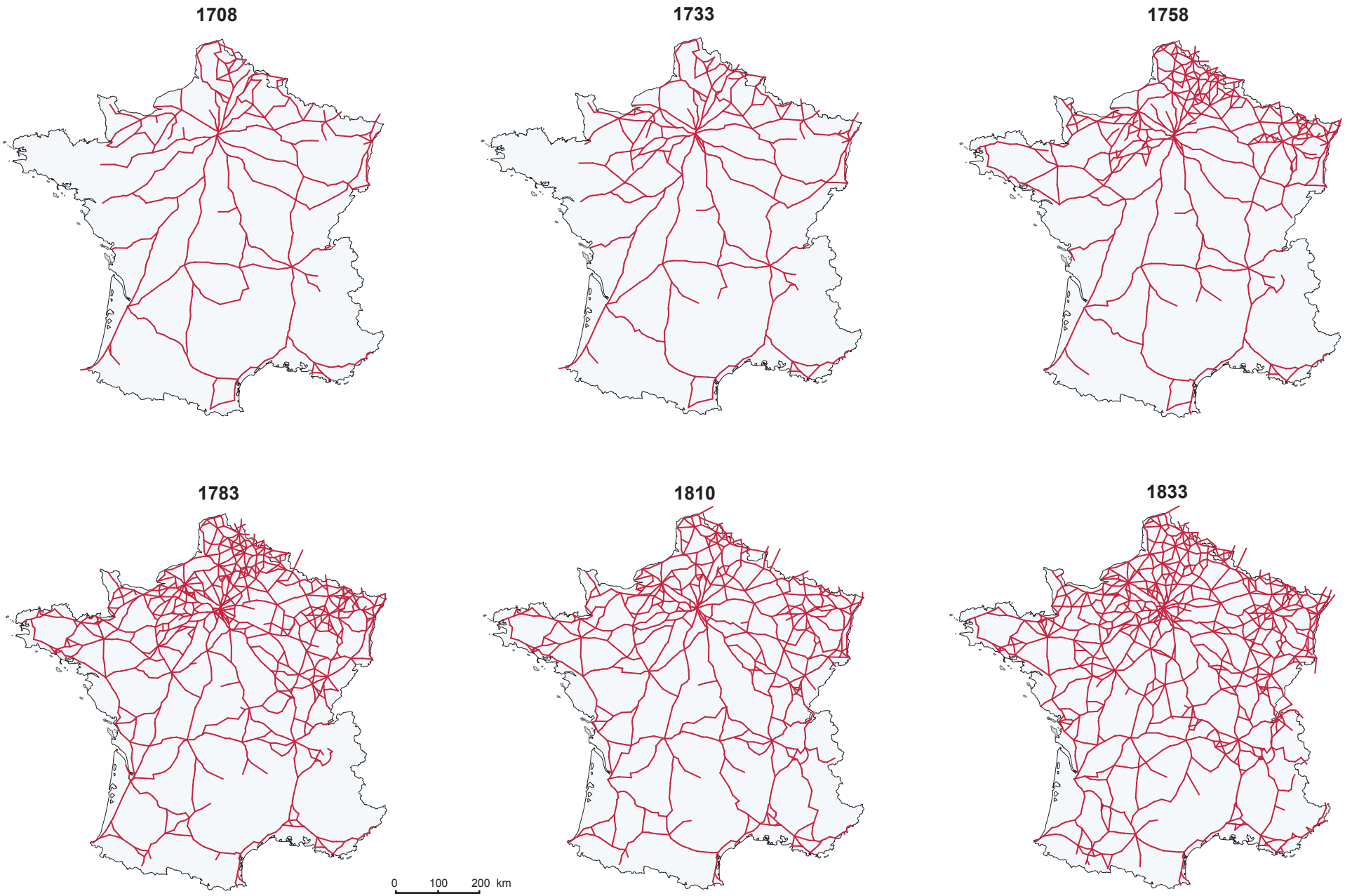
Bretagnolle, Verdier, UMR GÈographie-citÈs, 2004

Figure 3-bis: Postal roads and main cities and towns in 1833

Sources: Livres de Poste. Partiel database (Bretagnolle, Verdier, 2003)

Bretagnolle, Verdier, UMR GÈographie-citÈs 2004

Figure 3: The evolution of the Postal Roads between 1708 and 1833, inside the current boundaries of France



Sources: Livres de Poste. Partiel database (Bretagnolle, Verdier, 2003)

Figure 5: The evolution of the postal roads densities, between 1708 and 1833

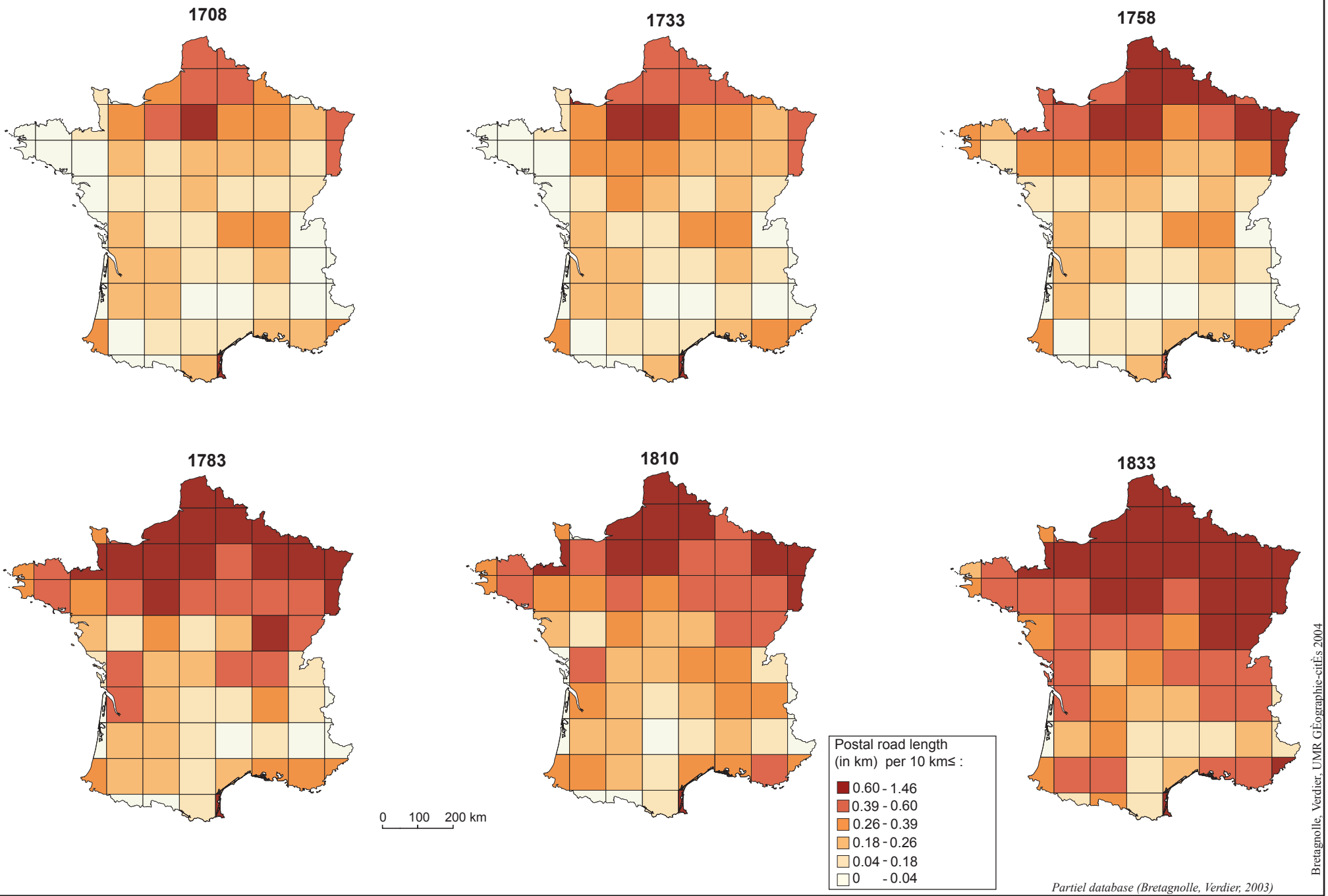
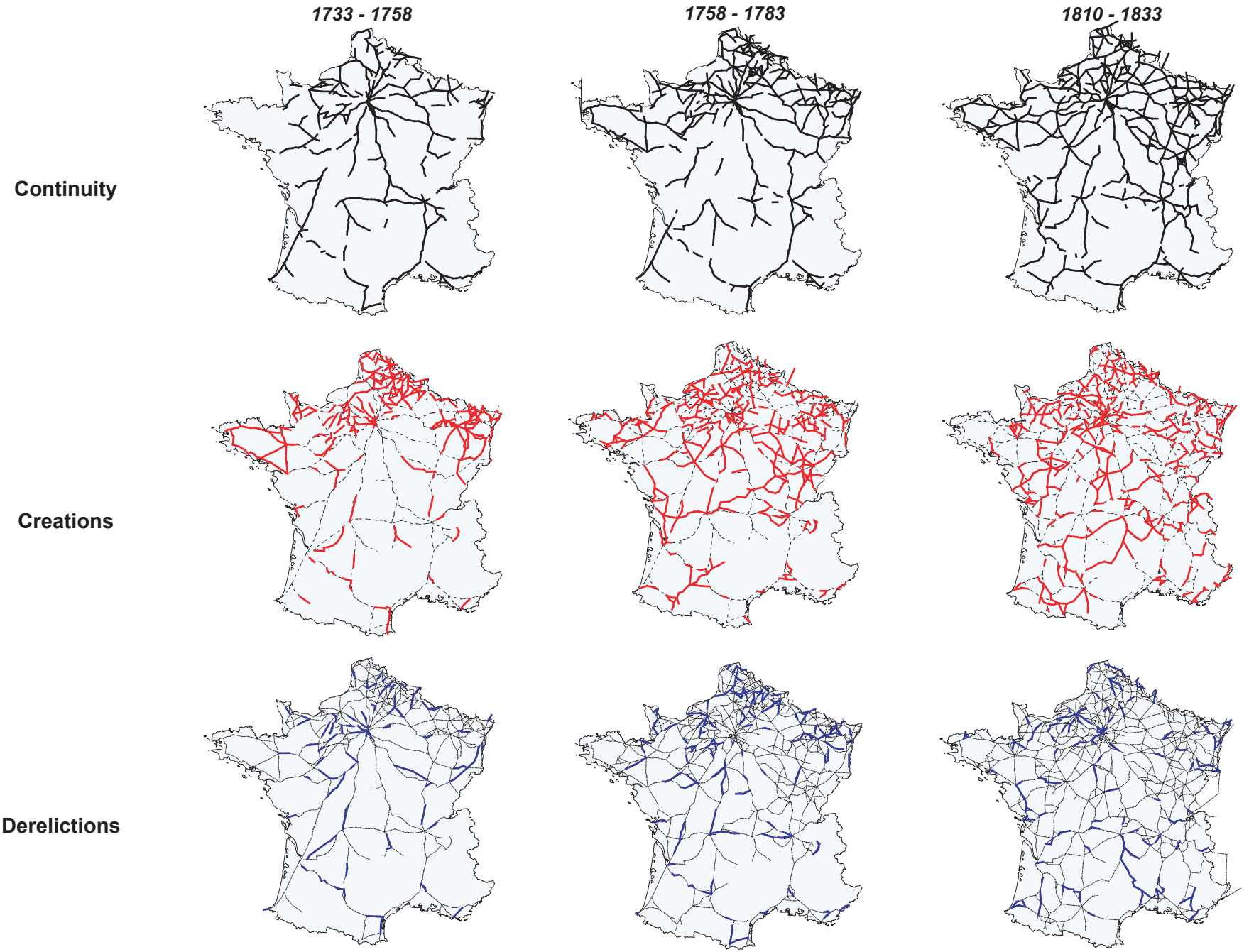


Figure 4: Permanent, created and derelicted postal roads between 1708 and 1833



Sources: Livres de Poste. Partiel database (Bretagnolle, Verdier, 2003)

Figure 6: The evolution of the postal relays densities, between 1708 and 1833

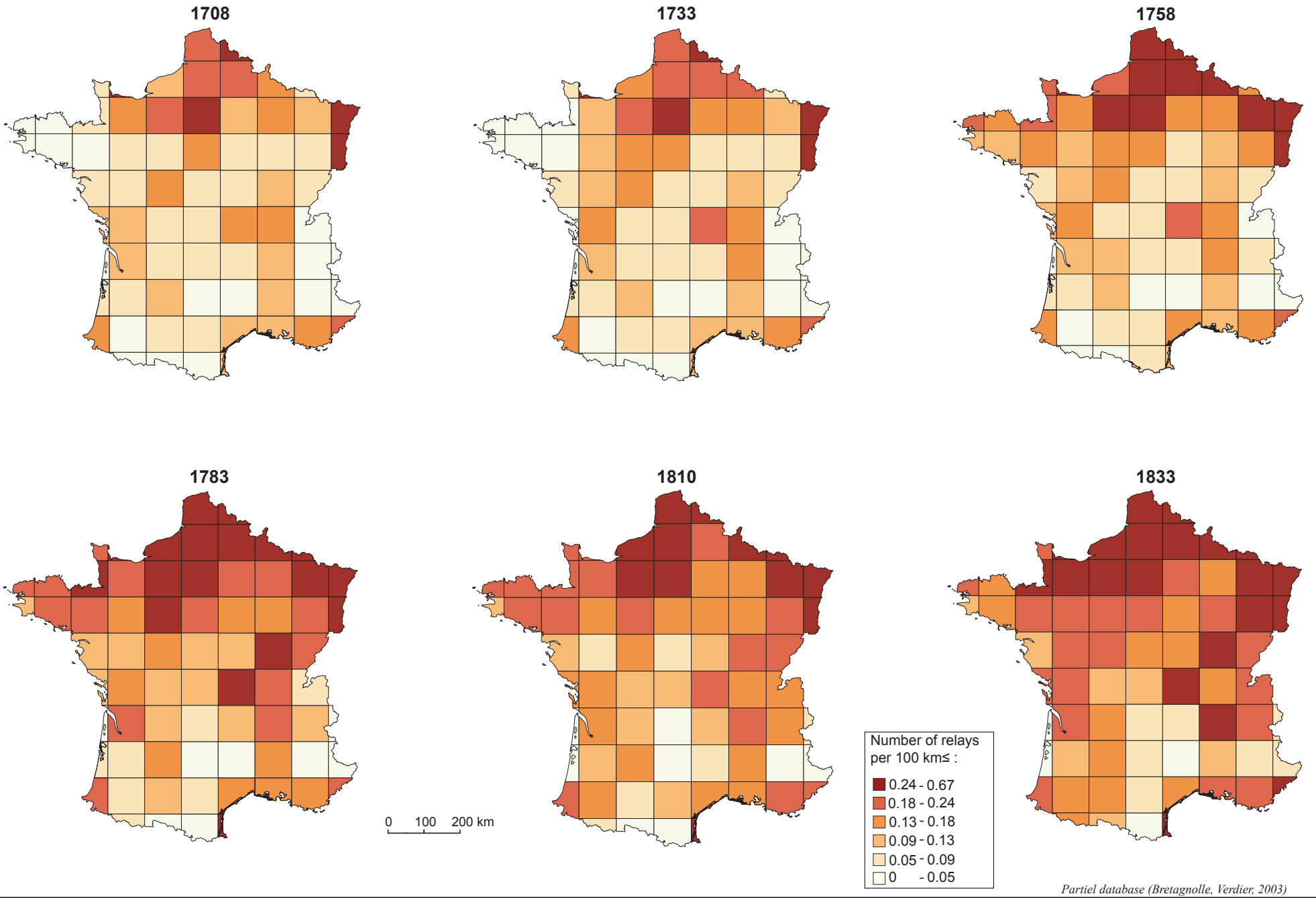
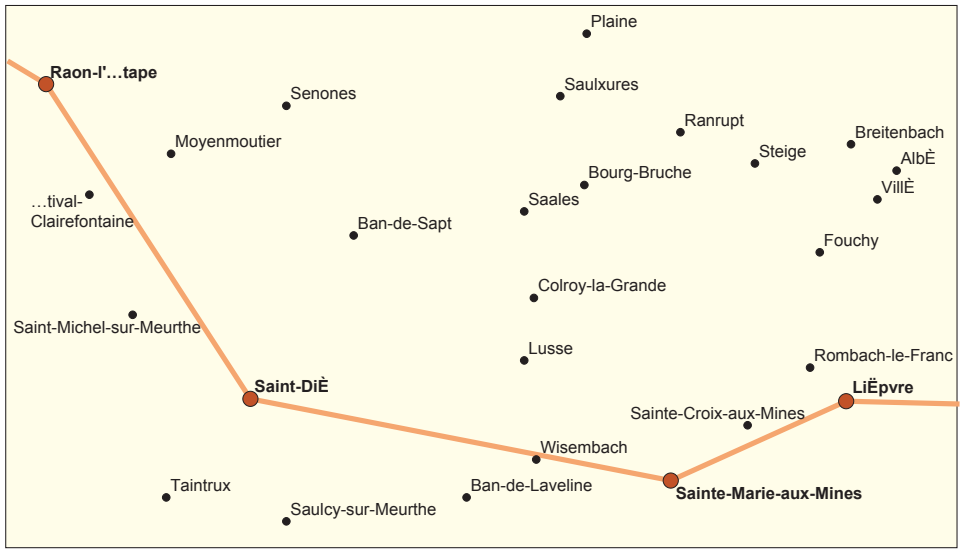


Figure 1: Capturing the postal relays in a Geographical Information System

The regional area around Saint-DiÈ in 1708



Commune largest than 750 inhabitants in 1806 (base C. Motte)

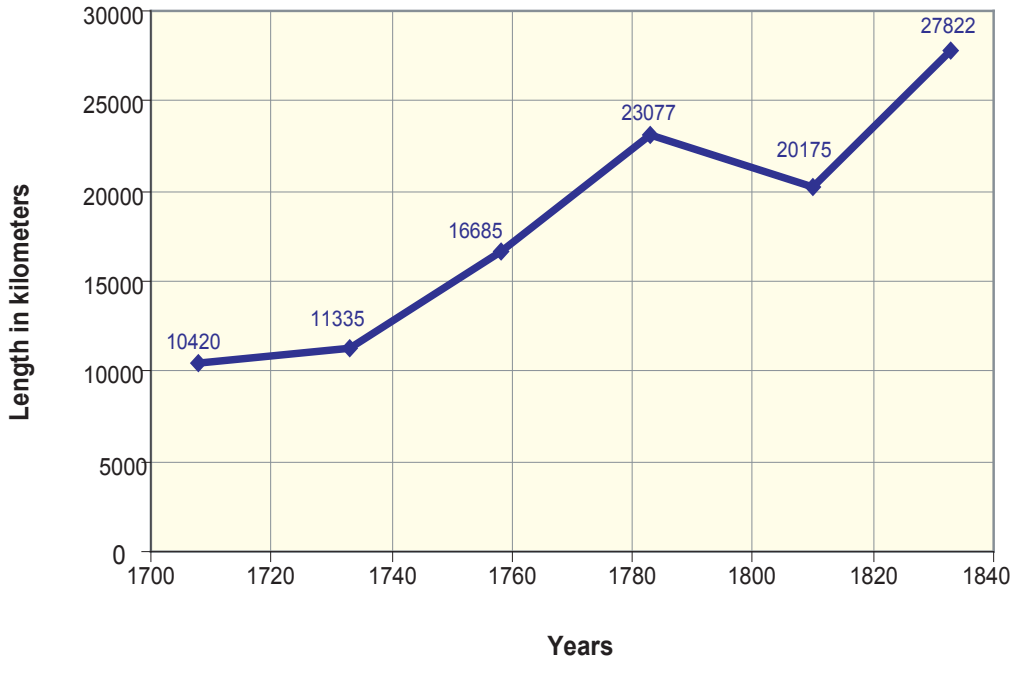
Commune including a postal relay in 1708 (captured in the GIS)

Road section between two relays (MapInfo 's digitilized tool)

Bretagnolle, Verdier, UMR GÈographie-citÈs, 2004

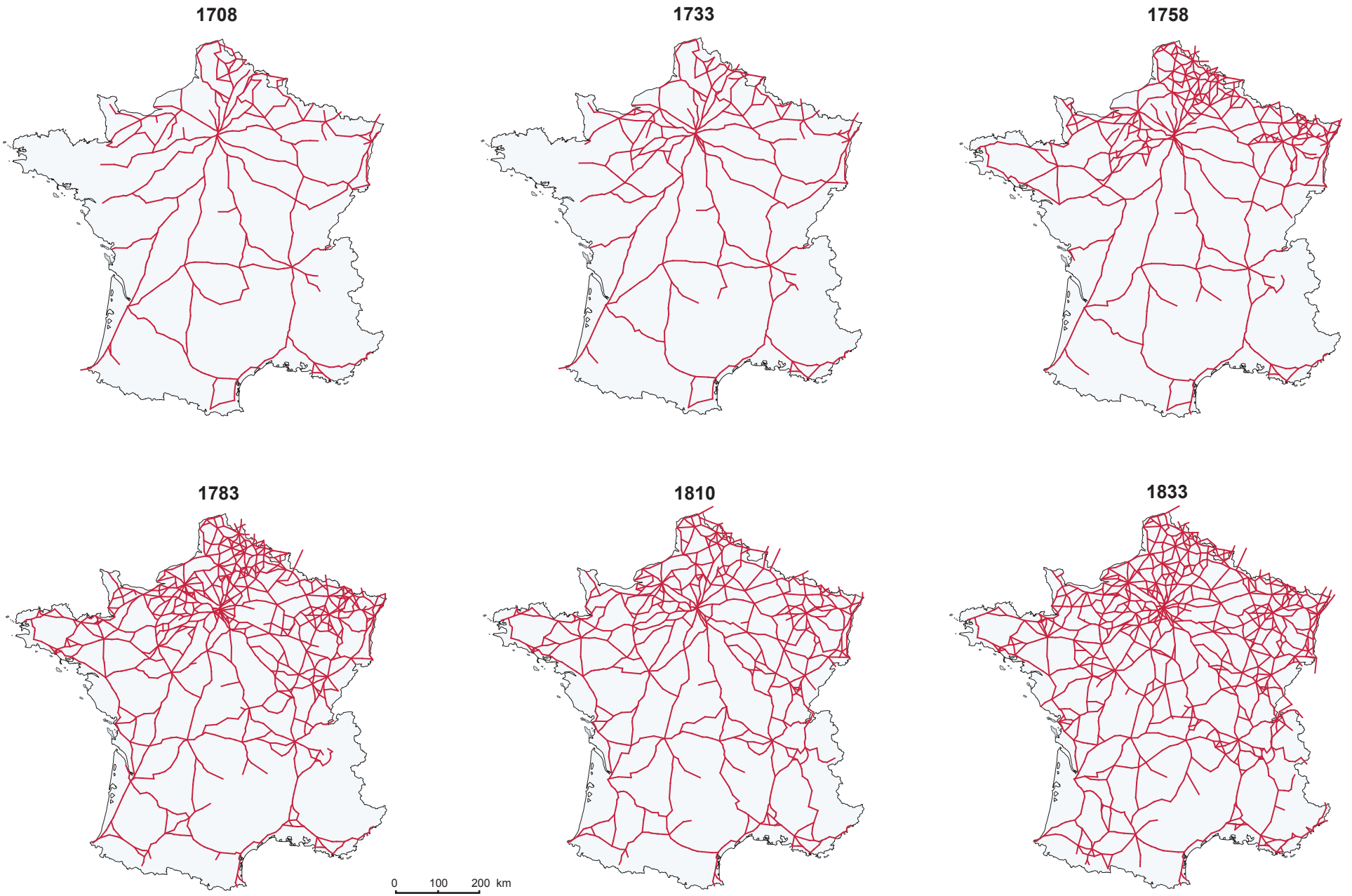
Figure 2 : Total length of the Postal roads (1708-1833)

(inside the current boundaries of the French country)



Bretagnolle, Verdier, UMR GÈographie-citÈs, 2004

Figure 3: The evolution of the Postal Roads between 1708 and 1833, inside the current boundaries of France



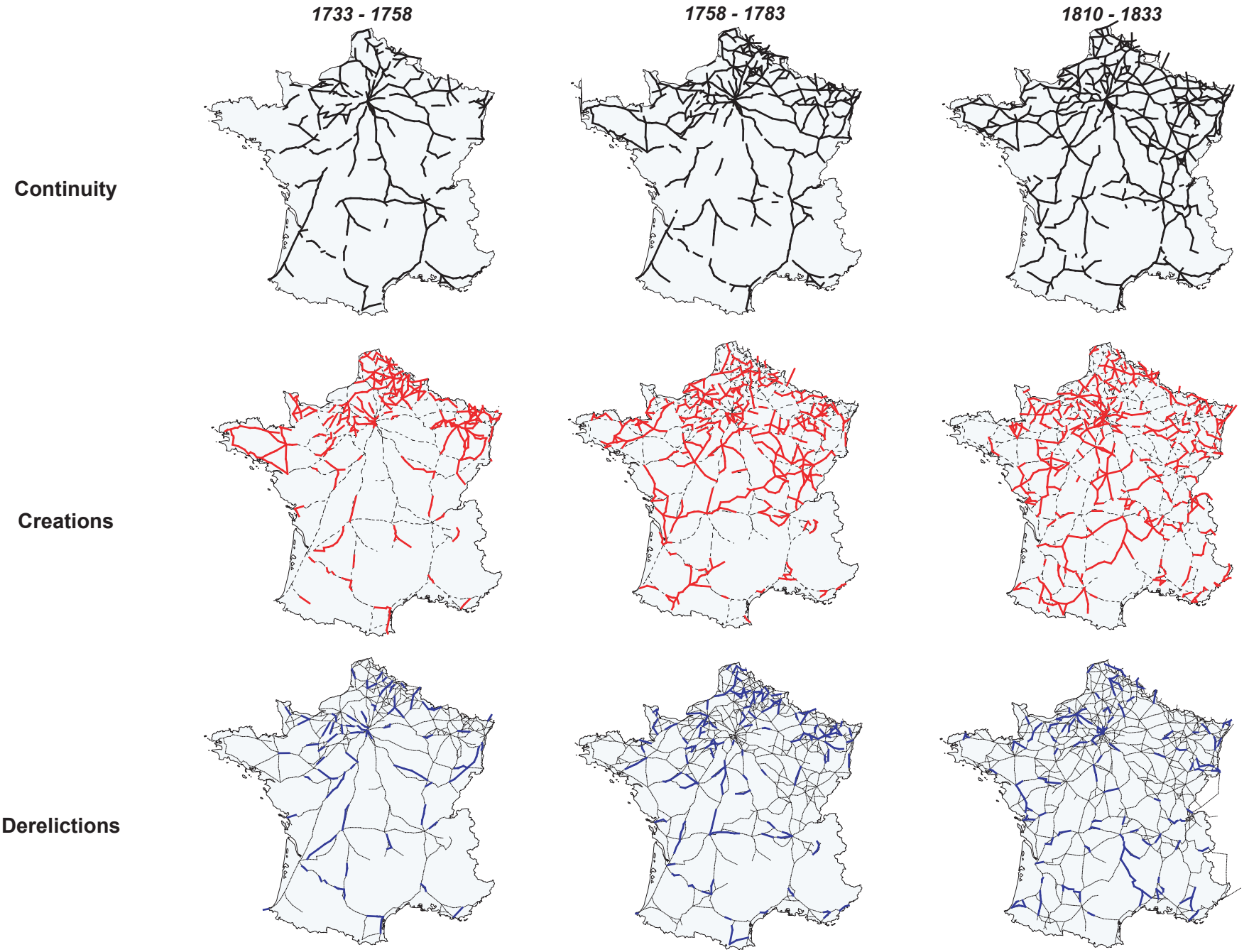
Sources: Livres de Poste. Partiel database (Bretagnolle, Verdier, 2003)

Figure 3-bis: Postal roads and main cities and towns in 1833

Sources: Livres de Poste. Partiel database (Bretagnolle, Verdier, 2003)

Bretagnolle, Verdier, UMR GÈographie-citÈs 2004

Figure 4: Permanent, created and derelicted postal roads between 1708 and 1833



Sources: Livres de Poste. Partiel database (Bretagnolle, Verdier, 2003)

Figure 5: The evolution of the postal roads densities, between 1708 and 1833

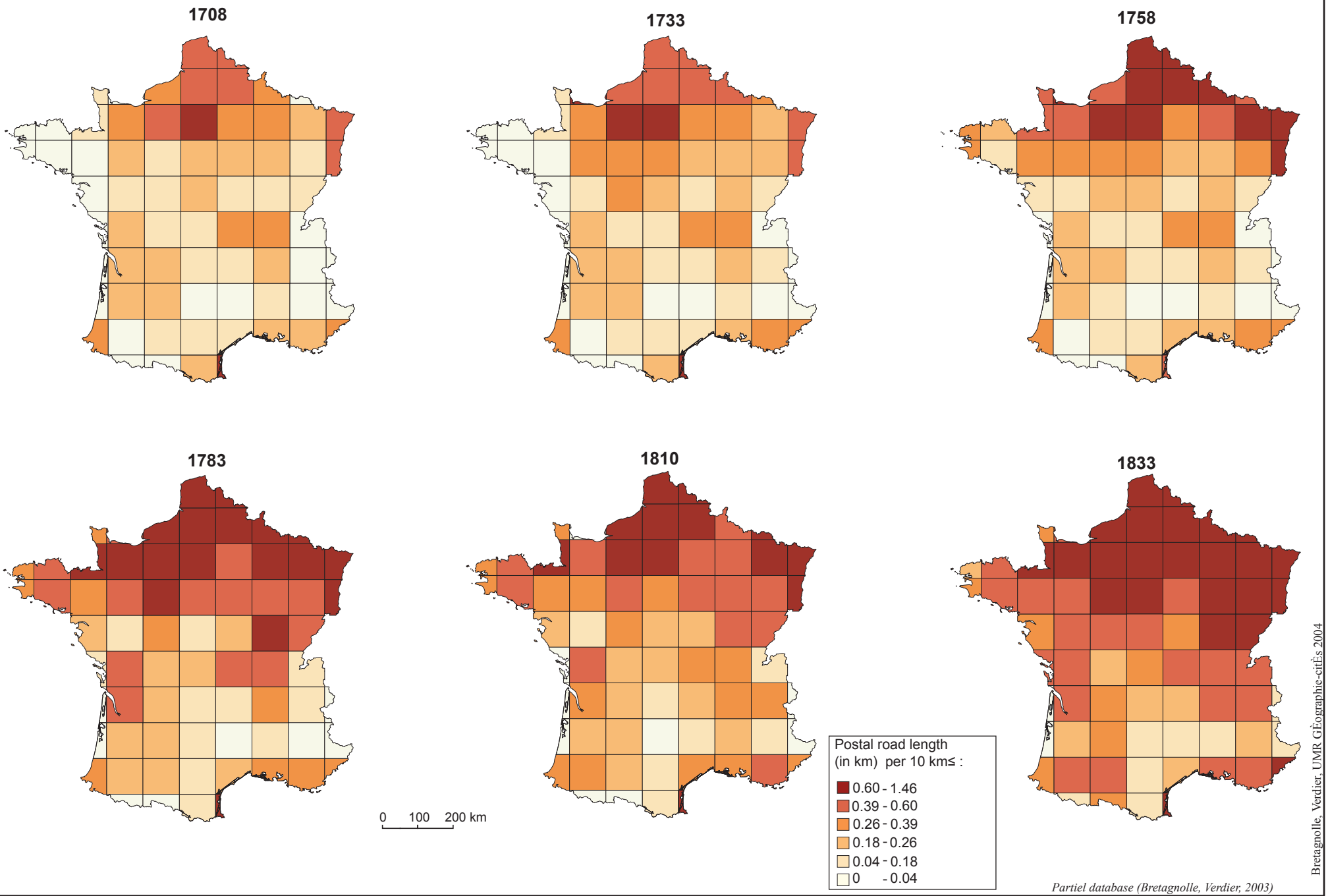


Figure 6: The evolution of the postal relays densities, between 1708 and 1833